

Amendments to the Specification:

Please replace the section titled "Brief Description of the Drawings" and beginning at page 5, line 22 of the substitute specification filed on March 3, 2003, with the following redlined section:

Brief Description of the Drawings

The invention will now be described with reference to the accompanying drawings, in which:

Figure 1 illustrates a portion of a transport stream;

Figure 2 illustrates in block schematic form a programmable transport interface;

Figure 3 is a block diagram of the transport controller of the programmable transport interface according to a preferred implementation of the present invention;

Figure 4 is a block diagram of the search engine of the transport controller of Figure 3;

Figure 5 illustrates schematically the advantageous interconnection of arrays, associated with transport packets, in the memory of the programmable transport interface of Figure 2; and

Figure 6 illustrates a digital broadcast system incorporating a programmable transport interface according to the present ~~invention~~ invention;

Figure 7 is a mid-level flow diagram illustrating an embodiment of a method demultiplexing a digital data stream input to a receiver;

Figure 8 is a mid-level flow diagram illustrating an embodiment of a method of decoding a broadcast digital data signal in a set-top-box;

Figure 9 is a mid-level flow diagram illustrating an embodiment of a method demultiplexing a digital data stream input to a receiver; and

Figure 10 is a mid-level flow diagram illustrating an embodiment of a method of decoding a broadcast digital data signal in a set-top-box.

Please replace the paragraph beginning at page 13, line 26 of the substitute specification filed on March 3, 2003, with the following redlined paragraph:

The main processor 600 can access the data SRAM 400 via main processor bus 402 to change the valid values of the PID, thus enabling the demultiplexing operation to be changed. Prior to operation of the programmable transport interface, the main processor 600 stores the desired PID values in the data SRAM. Thereafter, the data SRAM can be reprogrammed at any time by the main processor 600. Thus, the demultiplexing operation can be dynamically altered in situ by the main processor 600. However, once the main processor 600 has configured the data SRAM, the demultiplexing operation itself is independent of the main processor 600.

Please add, beginning at page 23, after line 15 of the substitute specification filed on March 3, 2003, the following four new paragraphs:

Figure 7 illustrates an embodiment of a method 700 of demultiplexing a digital data stream input to a receiver, the digital data stream including data packets each having a packet identifier, so as to retain only those data packets required by the receiver, the method comprising the steps of: inputting 702 the digital data stream; storing 704 in a memory separate from the data stream and under the control of a first control circuit, packet identifiers of data packets required by the receiver; extracting 706, under the control of a second control circuit, a packet identifier from a data packet in the input digital data stream; determining 708, under the control of a third control circuit, whether the extracted packet identifier matches one of the stored packet identifiers by systematically searching the memory; setting a match signal 712 responsive to a match determined by the third control circuit; outputting 714, responsive to a match and under the control of the third control circuit, an address in the memory; accessing 716, under the control of the second control circuit, the address in memory; retrieving 718 control information associated with the packet identifier and stored at such address; and demultiplexing 722, under the control of the second control circuit, the input data packet responsive to the match signal. In one embodiment, the method 700 further comprises the step of transferring 726, under the control of the second control circuit, the input data packet to a destination address identified by the control information. In one embodiment, the method 700 further comprises the steps of: determining 724 whether processing of the packet is desired; if so processing 728, under the control of the second control circuit, the input data packet in dependence on the control information; and transferring 730, under the control of the second control circuit, the processed input data packet to a destination address identified by the control information. In the illustrated embodiment, the step of demultiplexing 721 comprises discarding 722 the input data packet responsive to the match signal not being set. In one embodiment, when the input data packet comprises program specific information, said demultiplexing 721 step comprises filtering 723 sections in the input data packet so as to retain only those data packets having sections required by the receiver.

Figure 8 is a mid-level flow diagram illustrating an embodiment of a method 900 of decoding a broadcast digital data signal in a set top box, the method comprising: inputting 902 the digital data stream; storing 904 in a memory separate from the data stream and under the control of a first control circuit, packet identifiers of data packets required by the set-top-box; extracting 906, under the control of a second control circuit, a packet identifier from a data packet in the input digital data stream; determining 908, under the control of a third control circuit, whether the extracted packet identifier matches one of the stored packet identifiers; setting a match signal 910 responsive to a match determined by the third control circuit; outputting 912, responsive to a match and under the control of the third control circuit, an address in the memory; accessing 914, under the control of the second control circuit, the address in memory; retrieving 916 control information associated with the packet identifier and stored at such address; and demultiplexing 918, under the control of the second control circuit, the input data packet responsive to the match signal.

Figure 9 is a mid-level flow diagram illustrating an embodiment of a method 940 of demultiplexing a digital data stream input to a receiver, the digital data stream including data packets each having a packet identifier, so as to retain only those data packets required by the receiver. The method comprises the steps of: inputting 950 the digital data stream; storing 952 control information in a first data structure; storing 954 packet identifiers and corresponding addressing information in a second data structure; extracting 956, under the control of a first control circuit, a packet identifier from a data packet in the input digital data stream; determining 960, under the control of a second control circuit, whether the extracted packet identifier matches one of the packet identifiers in the second data structure by systematically searching the second data structure; setting a match signal 962 responsive to a match determined by the second control circuit; outputting 964 addressing information from the second data structure responsive to a match; retrieving 966, under control of the first control circuit and based on the outputted addressing information, control information from the first data structure; and demultiplexing 971, under the control of the first control circuit, the input data packet responsive to the match signal. The step of demultiplexing 971 as illustrated comprises demultiplexing 968, under the control of the first control circuit, the input data packet responsive to the match signal. The

illustrated embodiment further comprises the optional step of: transferring 976, under the control of the first control circuit, the input data packet to a destination address identified by the retrieved control information. The illustrated embodiment further comprises the optional steps of: processing 978, under the control of the first control circuit, the input data packet based on the control information; and transferring 980, under the control of the first control circuit, the processed input data packet to a destination address identified by the retrieved control information. In the illustrated embodiment, the step of demultiplexing 971 comprises discarding 982 the input data packet responsive to the match signal not being set. In the illustrated embodiment, when the input data packet comprises program specific information, the demultiplexing 971 comprises: filtering 972 sections in the input data packet so as to retain only those data packets having sections required by the receiver.

Figure 10 is a mid-level flow diagram illustrating an embodiment of a method 1000 of decoding a broadcast digital data signal in a set top box. As illustrated, the method 1000 comprises: inputting 1002 the digital data stream; storing 1004, in a first data structure, control information; storing 1006, in a second data structure, packet identifiers required by the set-top-box and addressing information corresponding to the packet identifiers; extracting 1008, under the control of a first control circuit, a packet identifier from a data packet in the input digital data stream; determining 1010, under the control of a second control circuit, whether the extracted packet identifier matches one of the packet identifiers stored in the second data structure; setting a match signal 1012 responsive to a match determined by the second control circuit; outputting 1014, responsive to a match, addressing information stored in the second data structure; retrieving 1016, under control of the first control circuit and based on the outputted addressing information, control information from the first data structure; and demultiplexing 1018, under the control of the first control circuit, the input data packet responsive to the match signal.